

CLAIMS:

1. An integrated process for dewaxing a raffinate feedstock containing up to 20,000 ppmw sulfur and up to 1000 ppmw nitrogen which comprises: (a) contacting the feedstock with a hydrotreating catalyst under hydrotreating conditions to produce a hydrotreated feedstock and gaseous nitrogen- and sulfur-containing contaminants, and (b) passing at least a portion of the hydrotreated feedstock and gaseous components from step (a) without disengagement to a hydrodewaxing zone containing a dewaxing catalyst including at least one of ZSM-48, ZSM-22, ZSM-23, ZSM-5, ZSM-35, Beta, SSZ-31, SAPO-11, SAPO-31, SAPO-41, MAPO-11, ECR-42, synthetic ferrierites, mordenite, offretite, erionite, and chabazite and hydrodewaxing the hydrotreated feedstock under hydrodewaxing conditions, said dewaxing catalyst including a metal hydrogenation component which is at least one Group 6 metal, at least one Group 8-10 metal, or mixtures of Group 6 and Group 8-10 metals, to form a hydrodewaxed product.

2. The process of claim 1 wherein the hydrotreating conditions temperatures of 315 - 425°C, pressures of 2170 - 20786 kPa, Liquid Hourly Space Velocities (LHSV) of 0.1 - 10 and hydrogen treat rates of 89 - 1780 m³/m³.

3. The process of claim 1 wherein the metal hydrogenation component is Pt, Pd or mixtures thereof.

4. The process of claim 1 wherein the hydrodewaxing conditions include a temperature of 360 to 425°C, hydrogen pressures of from 2859 - 20786 kPa, liquid hourly space velocities of 0.1 to 10 LHSV and hydrogen treat gas rates of from 53.4 - 1780 m³/m³.

5. The process of claim 1 further comprising a hydrofinishing step following step (b).

6. The process of claim 1 wherein the dewaxing catalyst contains ZSM-48.

7. The process of claim 1 wherein the dewaxing catalyst further comprises a second dewaxing catalyst.

8. An integrated process for dewaxing a raffinate feedstock containing up to 20,000 ppmw sulfur and up to 1000 ppmw nitrogen which comprises: (a) contacting the feedstock with a hydrotreating catalyst under hydrotreating conditions to produce a hydrotreated feedstock and gaseous nitrogen- and sulfur-containing contaminants, (b) passing at least a portion of the hydrotreated feedstock and gaseous sulfur- and nitrogen-containing contaminants from step (a) without disengagement to a hydrodewaxing zone containing a dewaxing catalyst including at least one of ZSM-48, ZSM-22, ZSM-23, ZSM-5, ZSM-35, Beta, SSZ-31, SAPO-11, SAPO-31, SAPO-41, MAPO-11, ECR-42, synthetic ferrierites, mordenite, offretite, erionite, and chabazite and hydrodewaxing the hydrotreated feedstock under hydrodewaxing conditions, said dewaxing catalyst including a metal hydrogenation component which is at least one Group 6 metal, at least one Group 8-10 metal, or mixtures of Group 6 and Group 8-10 metals, said hydrodewaxing zone also containing a second dewaxing catalyst wherein the second dewaxing catalyst is tolerant of the sulfur- and nitrogen-containing contaminants.

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9. The process of claim 8 wherein the hydrotreating conditions temperatures of 315 - 425°C, pressures of 2170 - 20786 kPa, Liquid Hourly Space Velocities (LHSV) of 0.1 - 10 and hydrogen treat rates of 89 - 1780 m³/m³.

10. The process of claim 8 wherein the metal hydrogenation component is Pt, Pd or mixtures thereof.

11. The process of claim 8 wherein the hydrodewaxing conditions include a temperature of 360 to 425°C, hydrogen pressures of from 2859 - 20786 kPa, liquid hourly space velocities of 0.1 to 10 LHSV and hydrogen treat gas rates of from 53.4 - 1780 m³/m³.

12. The process of claim 8 further comprising a hydrofinishing step following step (b).

13. The process of claim 8 wherein the second dewaxing catalyst is ZSM-5 or zeolite beta.

14. The process of claim 8 wherein the dewaxing catalyst contains ZSM-48.

15. An integrated process for dewaxing a raffinate feedstock containing up to 20,000 ppmw sulfur and up to 1000 ppmw nitrogen which comprises: (a) contacting the feedstock with a dewaxing catalyst including at least one of ZSM-48, ZSM-22, ZSM-23, ZSM-5, ZSM-35, Beta, SSZ-31, SAPO-11, SAPO-31, SAPO-41, MAPO-11, ECR-42, synthetic ferrierites, mordenite, offretite, erionite, and chabazite under hydrodewaxing conditions, said dewaxing catalyst including a

metal hydrogenation component which is at least one Group 6 metal, at least one Group 8-10 metal, or mixtures of Group 6 and Group 8-10 metals, to form a hydrodewaxed product, and (b) passing at least a portion of the hydrodewaxed product and gaseous components from step (b) to a hydrofinishing zone and hydrofinishing the hydrodewaxed product under hydrofinishing conditions.

16. The process of claim 15 wherein the metal hydrogenation component is Pt, Pd or mixtures thereof.

17. The process of claim 15 wherein the hydrodewaxing conditions include a temperature of 360 to 425°C, hydrogen pressures of from 2859 - 20786 kPa, liquid hourly space velocities of 0.1 to 10 LHSV and hydrogen treat gas rates of from 53.4 - 1780 m³/m³.

18. The process of claim 15 wherein the hydrofinishing conditions include temperatures of 150 -350°C, pressures of 100 - 3000 psig (790 - 20786 kPa), LHSV of 0.1 - 20, and treat gas rates of 300 - 10000 scf/bbl (53 - 1780 m³/m³).

19. The process of claim 15 wherein the dewaxing catalyst includes ZSM-48.

20. An integrated process for dewaxing a raffinate feed which comprises: (a) solvent dewaxing the raffinate to form a raffinate and a slack wax, (b) deoiling the slack wax to produce a foots oil, (c) contacting the foots oil with a hydrotreating catalyst under hydrotreating conditions to produce a hydrotreated foots oil and gaseous nitrogen- and sulfur-containing contaminants and (d) passing at least a

portion of the hydrotreated foots oil and gaseous sulfur- and nitrogen-containing contaminants from step (c) without disengagement to a hydrodewaxing zone containing a dewaxing catalyst including at least one of ZSM-48, ZSM-22, ZSM-23, ZSM-5, ZSM-35, Beta, SSZ-31, SAPO-11, SAPO-31, SAPO-41, MAPO-11, ECR-42, synthetic ferrierites, mordenite, offretite, erionite, and chabazite and hydrodewaxing the hydrotreated foots oil under hydrodewaxing conditions, said dewaxing catalyst including a metal hydrogenation component which is at least one Group 6 metal, at least one Group 8-10 metal, or mixtures of Group 6 and Group 8-10 metals to form a hydrodewaxed product.

21. The process of claim 20 wherein the hydrotreating conditions temperatures of 315 - 425°C, pressures of 2170 - 20786 kPa, Liquid Hourly Space Velocities (LHSV) of 0.1 - 10 and hydrogen treat rates of 89 - 1780 m³/m³.

22. The process of claim 20 wherein the metal hydrogenation component is Pt, Pd or mixtures thereof.

23. The process of claim 20 wherein the hydrodewaxing conditions include a temperature of 360 to 425°C, hydrogen pressures of from 2859 - 20786 kPa, liquid hourly space velocities of 0.1 to 10 LHSV and hydrogen treat gas rates of from 53.4 - 1780 m³/m³.

24. The process of claim 20 further comprising a hydrofinishing step following step (c).

25. The process of claim 20 wherein the dewaxing catalyst includes ZSM-48.

26. An integrated process for dewaxing a feedstock containing up to 20,000 ppmw sulfur and up to 1000 ppmw nitrogen comprises: (a) blending a raffinate feedstock and at least one of a slack wax or foots oil to form a blended feedstock, (b) contacting the blended feedstock with a hydrotreating catalyst under hydrotreating conditions to produce a hydrotreated feedstock and gaseous nitrogen- and sulfur-containing contaminants, and (c) passing at least a portion of the hydrotreated feedstock and gaseous components from step (b) without disengagement to a hydrodewaxing zone containing a dewaxing catalyst including at least one of ZSM-48, ZSM-22, ZSM-23, ZSM-5, ZSM-35, Beta, SSZ- 31, SAPO-11, SAPO-31, SAPO-41, MAPO-11, ECR-42, synthetic ferrierites, mordenite, offretite, erionite, and chabazite and hydrodewaxing the hydrotreated feedstock under hydrodewaxing conditions, said dewaxing catalyst including a metal hydrogenation component which is at least one Group 6 metal, at least one Group 8-10 metal, or mixtures of Group 6 and Group 8-10 metals, to form a hydrodewaxed product.

27. The process of claim 26 wherein the hydrotreating conditions temperatures of 315 - 425°C, pressures of 2170 - 20786 kPa, Liquid Hourly Space Velocities (LHSV) of 0.1 - 10 and hydrogen treat rates of 89 - 1780 m³/m³.

28. The process of claim 26 wherein the metal hydrogenation component is Pt, Pd or mixtures thereof.

29. The process of claim 26 wherein the hydrodewaxing conditions include a temperature of 360 to 425°C, hydrogen pressures of from 2859 - 20786 kPa, liquid hourly space velocities of 0.1 to 10 LHSV and hydrogen treat gas rates of from 53.4 - 1780 m³/m³.

30. The process of claim 26 further comprising a hydrofinishing step following step (c).

31. The process of claim 26 wherein the dewaxing catalyst includes ZSM-48.

32. An integrated process for dewaxing a raffinate feedstock containing up to 20,000 ppmw sulfur and up to 1000 ppmw nitrogen which comprises: (a) contacting the feedstock with a hydrotreating catalyst under hydrotreating conditions to produce a hydrotreated feedstock and gaseous nitrogen- and sulfur-containing contaminants, and (b) passing at least a portion of the hydrotreated feedstock and gaseous components from step (a) without disengagement to a hydrodewaxing zone containing a ZSM-48 dewaxing catalyst and hydrodewaxing the hydrotreated feedstock under hydrodewaxing conditions, said dewaxing catalyst including a metal hydrogenation component which is at least one Group 6 metal, at least one Group 8-10 metal, or mixtures of Group 6 and Group 8-10 metals, to form a hydrodewaxed product.

33. The process of claim 32 wherein the hydrotreating conditions temperatures of 315 - 425°C, pressures of 2170 - 20786 kPa, Liquid Hourly Space Velocities (LHSV) of 0.1 - 10 and hydrogen treat rates of 89 - 1780 m³/m³.

34. The process of claim 32 wherein the metal hydrogenation component is Pt, Pd or mixtures thereof.

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35. The process of claim 32 wherein the hydrodewaxing conditions include a temperature of 360 to 425°C, hydrogen pressures of from 2859 - 20786 kPa, liquid hourly space velocities of 0.1 to 10 LHSV and hydrogen treat gas rates of from 53.4 - 1780 m³/m³.

36. The process of claim 32 further comprising a hydrofinishing step following step (b).

37. The process of claim 32 wherein the dewaxing catalyst further comprises a second dewaxing catalyst.